

ONS00442

## CLAIMS

1. A method of forming a power factor correction device comprising:
  - 5 forming the power factor correction device to receive an AC voltage;
  - 10 forming an error amplifier of the power factor correction device to generate a deviation voltage representative of a difference between an output voltage of a power factor correction system and a desired output voltage;
  - 15 forming a storage element to receive a value of the deviation voltage and to form a stored voltage on the storage element; and
  - 20 forming a zero crossing detector to detect a zero crossing of the AC voltage and to responsively enable adjusting a value of the stored voltage.
- 20 2. The method of claim 1 wherein forming the zero crossing detector to detect the zero crossing of the AC voltage and to responsively enable adjusting the value of the stored voltage includes forming the zero crossing detector to responsively couple the deviation voltage to 25 the storage element during a point of the zero crossing.
- 30 3. The method of claim 2 wherein coupling the output of the error amplifier to the storage element at the zero crossing of the AC voltage includes enabling a switch to couple an output of an error amplifier to the storage element at the point of the zero crossing.

ONS00442

4. The method of claim 1 wherein forming the zero crossing detector to detect the zero crossing of the AC voltage and to responsively enable adjusting a value of the stored voltage includes adjusting the value of the  
5 stored voltage within no greater than twenty degrees of the zero crossing of the AC voltage.

5. A power factor correction method comprising:  
receiving an AC voltage;  
10 storing a value of an output of an error amplifier on a storage element to form a stored voltage;  
detecting a zero crossing of the AC voltage and  
responsively adjusting the stored voltage;  
using the stored voltage as an error voltage; and  
15 using the error voltage to form an AC reference voltage of a power factor correction circuit.

6. The power factor correction method of claim 5  
wherein storing the value of the output of the error  
20 amplifier on the storage element includes coupling the output of the error amplifier to the storage element at a point during the zero crossing of the AC voltage.

*added  
by agent  
4/21/04*

7. The power factor correction method of claim 5  
25 wherein detecting the zero crossing of the AC voltage and  
responsively adjusting the stored voltage includes  
adjusting the stored value within no greater than twenty  
degrees of the zero crossing of the AC voltage.

30 8. A power factor correction device comprising:  
an error amplifier having a first input coupled to  
receive a first reference voltage, a second input coupled  
to receive a feedback voltage, and an output;  
a storage node;  
35 a voltage return;

ONS00442

a storage element having a first terminal coupled to the storage node and a second terminal coupled to the voltage return; and

5 a zero crossing detector having an input coupled to receive an AC signal and an output coupled to responsively adjust, during a zero crossing of the AC signal, a value of a voltage stored on the storage element.

9. The power factor correction device of claim 8  
10 wherein the zero crossing detector having the input coupled to receive the AC signal and the output coupled to adjust, during the zero crossing of the AC signal, the value of the voltage stored on the storage element includes a switch having a first terminal coupled to the  
15 output of the error amplifier, a control terminal coupled to the output of the zero crossing detector, and a second terminal coupled to the storage node.

10. The power factor correction device of claim 8  
20 wherein the zero crossing detector is operable to adjust the value of the voltage stored on the storage element within no greater than twenty degrees of the zero crossing of the AC signal.

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